

Serial No.: 10/811,946  
Docket No.: 955-1003  
Amendment dated September 18, 2007  
Reply to the Office Action of April 18, 2007

## **REMARKS**

### **Introduction**

Applicant also notes with appreciation the Examiner's indication that each of the references cited in the Information Disclosure Statement of June 14, 2004 have been considered.

Upon entry of the foregoing amendment, claims 1, 3-7, and 9-17 are pending in the application. Claims 1 and 7 have been amended. Claims 2 and 8 have been cancelled and claims 16 and 17 have been added. No new matter is being presented. In view of the following remarks, reconsideration and allowance of all the pending claims are requested.

### **Objections**

The Examiner has objected to the claim 1 due to informalities. The amendments to claim 1 include appropriate language to address the Examiner's objection.

### **Rejections under 35 USC §102**

Claims 1-2 and 4 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,337,001 to Haag, et al. (hereinafter "Haag"). Reconsideration and allowance of these claims are respectfully requested for at least the reasons discussed below.

#### **Claim 1**

In the Official Action, the Examiner takes the position that Haag allegedly discloses "a sputtering apparatus capable of applying an increasing voltage to at least one target (figure 12, part "c") through a magnetic field. The Examiner further contends that "[e]lectrical voltage has been shown to be directly correlated to electrical current. Since the voltage is increasing, the current must increase as well." See Detailed Action, item 3, lines 7-8.

It is respectfully submitted that, contrary to the Examiner's assertions, the cited graph of FIG. 12 in Haag does not show an increasing voltage at a target, but shows only a correlation between voltage on the target and discharge power. In fact, Haag specifies that the voltage on the target is preferably a DC voltage, and no disclosure is provided in the reference to providing an increasing voltage on the target. Further, if the Examiner is relying on the theory of

Serial No.: 10/811,946  
Docket No.: 955-1003  
Amendment dated September 18, 2007  
Reply to the Office Action of April 18, 2007

inherency in any manner, "the Examiner must provide a technical basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990; emphasis in original).

However, notwithstanding the foregoing deficiency of Haag, the reference nowhere contemplates providing more power to a target once a power supply reaches a point where a further increase in voltage across the target cannot be obtained, such as when the surface of the target becomes oxidized, as described in the subject patent application. Among other things, Haag fails to teach or disclose "applying an electric current to the magnesium target by the power control part to increase power on the magnesium target when the applied voltage on the magnesium target stops increasing in response to an increase in the applied voltage," as presently recited in independent claim 1. First, as discussed above, Haag does not teach or disclose providing an increasing voltage at the target. Additionally, Haag fails to disclose or teach applying a current, "to increase power on the magnesium target when the applied voltage on the magnesium target stops increasing in response to an increase in the applied voltage," as presently recited in independent claim 1. In fact, Haag fails to disclose or teach any capability or mechanism to apply a voltage and an electric current separately to at least one magnesium target, and cannot therefore fulfill the operations recited in independent claim 1. As the Examiner will recall, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as contained in the...claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Moreover, "The elements must be arranged as required by the claim..." In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Thus, for at least the reason that Haag fails to disclose or teach "applying an electric current to the magnesium target by the power control part to increase power on the magnesium target when the applied voltage on the magnesium target stops increasing in response to an increase in the applied voltage," as presently recited in the subject claim, the reference cannot anticipate this claim. Accordingly, reconsideration and allowance of independent claim 1 are earnestly solicited.

Serial No.: 10/811,946  
Docket No.: 955-1003  
Amendment dated September 18, 2007  
Reply to the Office Action of April 18, 2007

#### Claims 2 and 4

Dependent claim 2 has been cancelled by this Amendment, thereby obviating the rejection thereof. Dependent claim 4 incorporates all of the operations recited in independent claim 1. For at least the reason that Haag fails to disclose or teach all of the operations recited in independent claim 1, the reference cannot anticipate the dependent claim 4. Accordingly, reconsideration and allowance of dependent claim 4 are earnestly solicited.

#### Rejections under 35 USC §103

I. Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Haag. The Examiner alleges that "Haag '001 further discloses figure 12, part "c" depicting the voltage increasing until the power has saturated the target, at which the voltage levels off at approximately 310 volts. The voltage starts at approximately 250 volts." See Detailed Action, item 5, lines 3-5. However, as discussed above, FIG. 12 of Haag does not depict an increasing applied voltage, and nowhere in the reference is there disclosure of the voltage applied at the target being dynamically increased. FIG. 12 of Haag depicts only a relationship between the burning voltage U and the discharge power P. See Haag, column 7, lines 30-56. There is no disclosure in the reference that the voltage on the target is applied in an increasing manner until power saturation, as the Examiner alleges, much less that the voltage is applied to increase from one voltage to another voltage.

As the Examiner is aware:

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the Examiner does not produce a *prima facie* case, the applicant is under no obligation to submit nonobviousness...

... To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Serial No.: 10/811,946  
Docket No.: 955-1003  
Amendment dated September 18, 2007  
Reply to the Office Action of April 18, 2007

Thus, for at least the reason that Haag fails to disclose, teach or suggest, "the voltage applied to the at least one magnesium target is between 250V and 300V when the voltage stops increasing," as recited in dependent claim 3, the reference cannot be made obvious by the reference.

Moreover, claim 3 incorporates all of the operations and limitations set forth in independent claim 1, which, as stated above, are not disclosed or taught by Haag. Thus, for at least the reason that dependent claim 3 inherently recites the combination of operations of independent claim 1, which is nowhere taught in Haag, claim 3 is patently distinguished over the reference. Accordingly, reconsideration and allowance of this claim are earnestly solicited.

II. Claims 5-6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Haag et al. in view of U.S. Publication No. 2001/0050220 to Chiang, et al. (hereinafter "Chiang").

Claims 5 and 6 incorporate all of the operations and limitations set forth in independent claim 1, which, as stated above, are not disclosed or taught by Haag. Chiang was cited by the Examiner as allegedly disclosing certain functional details recited in claims 5 and 6 that are not taught by Haag. However, Chiang fails to overcome the deficiencies of Haag with respect to independent claim 1, such as, for example, the "applying an electric current to the magnesium target by the power control part to increase power on the magnesium target when the applied voltage on the magnesium target stops increasing in response to an increase in the applied voltage." Thus, for at least the reason that dependent claims 5 and 6 inherently recite the combination of operations of independent claim 1, which is nowhere taught in Haag, in Chiang, and in the combination of the references, claims 5 and 6 are patently distinguished over the references cited. Accordingly, reconsideration and allowance of these claims are earnestly solicited.

III. Claims 7-8, 10-13 and 15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Haag in view of U.S. Patent No. 6,337,001 to Stollernwerk, et al. (hereinafter "Stollernwerk"). Reconsideration and allowance of the subject claims are respectfully requested for at least the reasons discussed below.

Serial No.: 10/811,946  
Docket No.: 955-1003  
Amendment dated September 18, 2007  
Reply to the Office Action of April 18, 2007

#### Claim 7

In the Official Action, the Examiner cites Haag as allegedly disclosing "a sputtering apparatus capable of applying an increasing voltage to at least one target (figure 12, part "c") through a magnetic field," in similar manner as in the rejection of independent claim 1. The Examiner admits that Haag does not include a heater control part, and relies on Stollernwerk as allegedly disclosing such. The Examiner takes the position that it would have been obvious to use the heater taught in Stollernwerk with the apparatus in Haag to gain the advantages of better MgO film coating by controlling the heating and cooling of the substrate.

As discussed with regard to independent claim 1, Haag does not disclose or teach the increasing applied voltage, as the Examiner contends. Consequently, Haag fails to disclose or suggest, "a power control part to apply a voltage and an electric current separately to the magnesium target, the power control part applying the voltage and subsequently applying the current when the voltage on the magnesium target stops increasing when the applied voltage increases," as presently recited in independent claim 7. Stollernwerk was cited as disclosing the heating control recited in claim 7 missing in Haag, but fails to disclose the power control part also missing in Haag. Thus, for at least the reason that Haag and Stollernwerk fail to disclose "a power control part to apply a voltage and an electric current separately to the magnesium target, the power control part applying the voltage and subsequently applying the current when the voltage on the magnesium target stops increasing when the applied voltage increases," as presently recited in independent claim 7, even when combined, the references cannot make obvious the subject claim. Accordingly, reconsideration and allowance of independent claim 7 are earnestly solicited.

#### Claims 8, 10-13 and 15

Dependent claim 8 has been cancelled by this Amendment, thereby obviating the rejection thereof. Dependent claims 10-13 and 15 incorporate all of the elements recited in independent claim 7. For at least the reason that Haag, Stollernwerk, and the combination of references, fail to disclose or teach all of the elements recited in independent claim 7, the reference cannot make obvious the subject dependent claims. Accordingly, reconsideration and allowance of dependent claims 10-13 and 15 are earnestly solicited.

Serial No.: 10/811,946  
Docket No.: 955-1003  
Amendment dated September 18, 2007  
Reply to the Office Action of April 18, 2007

IV. Claim 9 is rejected under 35 U.S.C. §103(a) as being unpatentable over Haag and Stollernwerk as applied to claim 7 and further in view of Chiang.

Claim 9 incorporate all of the elements and limitations set forth in independent claim 7, which, as stated above, are not disclosed or taught by Haag. Chiang and Stollernwerk were cited by the Examiner as allegedly disclosing certain structural details recited in claim 9 that are not taught by Haag. However, Chiang and Stollernwerk fail to overcome the deficiencies of Haag with respect to independent claim 7, such as, for example, the “a power control part to apply a voltage and an electric current separately to the magnesium target, the power control part applying the voltage and subsequently applying the current when the voltage on the magnesium target stops increasing when the applied voltage increases.” Thus, for at least the reason that dependent claim 9 inherently recite the combination of elements of independent claim 7, which is nowhere taught in Haag, in Chiang, in Stollernwerk, and in the combination of the references, claim 9 is patently distinguished over the references cited. Accordingly, reconsideration and allowance of this claim are earnestly solicited.

V. Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over Haag and Stollernwerk in view of U.S. Patent No. 5,900,391 to Sakakibara, et al. (hereinafter “Sakakibara”).

Claims 14 incorporates all of the operations and limitations set forth in independent claim 7, which, as stated above, are not disclosed or taught by Haag. Stollernwerk and Sakakibara were cited by the Examiner as allegedly disclosing certain functional details recited in claim 14 that are not taught by Haag. However, Stollernwerk and Sakakibara fail to overcome the deficiencies of Haag with respect to independent claim 7, such as, for example, the “a power control part to apply a voltage and an electric current separately to the magnesium target, the power control part applying the voltage and subsequently applying the current when the voltage on the magnesium target stops increasing when the applied voltage increases.” Thus, for at least the reason that dependent claim 14 inherently recite the combination of elements of independent claim 7, which is nowhere taught in Haag, in Stollernwerk, in Sakakibara, and in

Serial No.: 10/811,946  
Docket No.: 955-1003  
Amendment dated September 18, 2007  
Reply to the Office Action of April 18, 2007

the combination of the references, claim 14 is patently distinguished over the references cited. Accordingly, reconsideration and allowance of this claim are earnestly solicited.

#### **New Claims**

Claims 16 and 17 have been added. No new matter is being presented by way of the added claims, and support for the recitations thereof can be found throughout the specification and drawings, such as, for example, in FIG. 5, the description thereof, and paragraph [25].

#### **Conclusion**

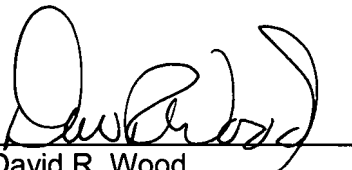
It is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, there being no other objections or rejections, this application is in condition for allowance, and a notice to this effect is earnestly solicited.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below.

If any further fees are required in connection with the filing of this amendment, please charge the same to our Deposit Account No. 502827.

Respectfully submitted,

STANZIONE & KIM, LLP

By:   
David R. Wood  
Registration No. 53,868

Dated: September 18, 2007  
919 18<sup>th</sup> St., NW, Suite 440  
Washington, DC 20006  
Telephone: (202) 775-1900  
Facsimile: (202) 775-1901